TMF

June 1989

THE MAC FLYER - For Greater Safety in MAC Air Operations

463D TACTICAL AIRLIFT WING

The 463d MAW . . . page 16

35th ANNIVERSARY ISSUE

TMF

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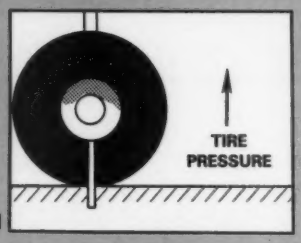
June 1989 MACSP 127-5 VOL XXXVI NO. 6



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General Duane H. Cassidy

It's hard to believe it's been almost 35 years since I read my first copy of what was then called *The MATS Flyer*. We both began our relationship with MATS—now MAC—in 1954. Since then I've moved in and out of MAC several times, but the *Flyer* has always been there, doing its critical job of reminding MAC crewmembers and other aviators worldwide to fly safely. Those 35 years have seen dramatic changes in the command's safety record. In 1955, *The MAC Flyer's* first full year of production, the command experienced a combined rate of 6.07 Class A and B mishaps per 100,000 flying hours, with 125 fatalities. Fortunately, by 1964, *The MAC Flyer's* tenth anniversary, the command's rate was down to 1.69. This downward trend continued, despite increased flying during the Vietnam War, culminating with FY 1988's *first ever, perfect record*—zero Class A or B mishaps and no fatalities. But, we can't sit on our laurels. We've had excellent years before, only to be hit with the harsh reality of the dangerous nature of our business when the next tragic mishap occurred. Although I'm taking this opportunity to congratulate *The MAC Flyer* on 35 years of commitment to MAC flight safety, I'm sure the people who write it will be the first to agree that *The MAC Flyer* is just one part of MAC's safety effort. It takes a total team effort to produce a record like last year's. Safety, stan-eval, training, maintenance, aerial port—everyone in MAC plays a vital part in our effort to preserve our scarce resources.

I congratulate *The MAC Flyer* and the fine people of this command for their outstanding contributions. We're on the right track—let's keep up the good work.

CELEBRATING 35 YEARS OF *TMF*: 1954 - 1989

Brigadier General Floyd E. Hargrove, MAC Inspector General, retires 1 August 1989 after a distinguished 30-year career. We at TMF are delighted to carry his farewell remarks to MAC crewmembers.

I've been very pleased with the MAC flight safety program during the last 2 years. We've given *The MAC Flyer* a bold new look as it continues to deliver hard-hitting flight safety information to MAC's aircrews. I cannot help but mention our flight safety record for FY 88—no Class A or B flight mishaps. However, we must not rest on our laurels—we have already had three Class A mishaps this year. We all must do our utmost to ensure we are physically and psychologically ready for our next mission. Human factors, or "human failings," are by far our most prevalent cause of aircraft mishaps. The primary responsibility for mishap prevention lies with the people on the line doing the job. Commanders and supervisors should do their utmost to support and motivate their people to do the job correctly and safely but it's up to the folks on the line to take that and turn it into a safe, completed mission.

The last 2 years have given me a unique opportunity to watch MAC's people on the job. You have reaffirmed my belief; you are the most professional crews and support people in the Air Force. However, we do operate in a high risk environment and you must never become complacent.

As I complete 30 years service and finish this chapter of my life, I wish all of you the best flying possible. Manage the risk and complete the mission!

Floyd E. Hargrove

Remember The Hard Facts When You Circle

. . . or you'll not be ready for the unexpected.

By Maj. Hector R. Alvarez
89 MAW, Andrews AFB, Md.

On a recent descent to Monterey Peninsula Airport, Calif., I encountered a familiar problem I thought I was prepared for—a circling approach. This one snuck up on us a little bit, but no problem, I thought, we were flexible. Besides, my descent briefing always included a look at the VFR Sectional Chart to compare it against the minimum sector altitudes. While on a vector to VFR approach, the controller stair-stepped our altitudes to avoid numerous hills. A low broken cloud layer prevented us from seeing the runway until we were over it, so we had to quickly flip approach plates and fly a localizer approach and circle to land. I briefed the approach, set up the Category D minimums, and flew the approach. We saw the

1988 MAC Flight Safety Writing Contest Honorable Mention

Don't be unpleasantly surprised.

runway at 700 ft (MDA 500 ft), so I leveled off to circle. So far so good. I was going to be five minutes late, but it couldn't be helped, and my passengers were briefed on the reason for the delay.

Here we go—circling approach. I briefed the copilot to monitor our position and look for traffic while I monitored altitude and airspeed. The tower controller advised, "Keep it tight." No problem. I hadn't left *all* my tiger blood back in T-38s. Besides, AFM 51-37 says Category D minimums are good to 2.3 nm from the approach end of the runway. However, while on downwind leg approaching base turn, I was surprised how steeply the terrain was rising. There was no mountain or obstacle in our flightpath that could easily be picked off the sectional chart, but even at 700 ft I was beginning to get a bit uncomfortable as I turned base.

After landing, I started thinking. What if I had to descend right to published MDA at night? I didn't notice anything that would have given any clue of how close to the ground I was. What if Tower had said, "You're Number 2 behind Cessna traffic?" Would I have extended to say, 2.5 nm? 2.7 nm? Could any other distraction have caused me to not "keep it in tight?" I could go on, but you get the idea. I don't like being unpleasantly surprised by something I hadn't planned. I've little doubt that, in any of the above scenarios, the rising terrain would have been perilously close—even after what I thought was very thorough planning.

This and other situations raise concern about how well we apply published obstacle information and minimum sector altitudes to low altitude maneuvering. One close call occurred as I instructed during transition training at a local airport. The pilot briefed a VOR A Approach to Allentown, Pennsylvania, including minimum sector altitudes. On the final approach course just prior to a stepdown fix, a handy little contraption on our aircraft began a litany of "TERRAIN, TERRAIN, TERRAIN. . ." very loudly and clearly. The pilot's reaction was to want the GPWS (Ground Proximity Warning System or "Gip Wiz") circuit breaker pulled to end this very annoying cockpit noise. Of course, I refused, and let the system do its job—keeping us aware of the mountain below.

The pilot was surprised when I explained the reason for the warning. Even after his briefing, he had not expected to encounter high terrain so close to the approach. He briefed only what he *had* to brief, but hadn't applied that information to the present situation.

Unfortunately, this is not uncommon. A subsequent circling approach to the same airport but to another runway not only overflew part of the city, but was so close to some large buildings I could almost imagine what channel that TV radar dish on top of one of them was set to. At that moment, I was *very* glad for the 2.3 nm restriction.

As I considered these and other experiences, I remembered that during my three years as a T-38 IP, the only T-38 accident that occurred happened during a practice circling approach. The pilot overshot the runway and stalled attempting to complete the maneuver. Both pilots were killed. Was there a common thread in these situations? How well did *I* plan if I had to circle? How well are we applying all the available information printed on approach plates and charts? Add this to the fact we rarely plan to execute circling approaches. Conditions arise where a straight-in approach

can quickly become a circle to land. Plus, not everything in a circling approach will go as expected. Tower can quickly change the direction and/or runway—each causing major changes with no chance to call time out.

I've some suggestions for us all to consider. First and foremost, the published minimum sector and obstacle heights are not just "numbers." They represent "hard facts." I'll borrow from Latin just to name a few potential hazards: *tallis structurus, antenneous teeveeus, mountaneus altus,* and of course, *cumulus granitus.* If our descent preparations and briefings only fill in the "terrain square," they aren't acceptable.

Information must be applied using a VFR chart so we can descend with confidence. We must have no question about where we can safely maneuver. It's better to admit ignorance and say, "Min safe is 5,200 ft, but I'm not sure why," than to fool ourselves by reciting an empty number. From the VFR chart, learn the "lay of the land." Draw your course to the IAF. Sketch in the holding pattern, final approach, and missed approach. Visualize how the runway layout will look when you reach minimums. Fly the approach in your head—better yet, talk it through—and project potential terrain or obstacles. Always consider a circling possibility—to any compatible runway.

Now, you're almost ready to circle. How will winds affect this maneuver? Winds can cause a tight approach to become unsafe when the ace pilot attempts to overcorrect from a potential overshoot. It can also cause you to drift too far from the runway—possibly close to some of those Latin hazards mentioned. Set the runway heading on the CDI. Remember that T-38 crash I mentioned? The accident board found a road almost parallel to the runway where the aircraft was flying downwind. The board concluded the pilots lined up on the road and slowly angled toward the runway, aggravating the overshoot. If the CDI is your runway, only winds and a bad heading can cause drift.

Timing will help you remain within 51-37 distance to the threshold. Correctly applied, it will put you close to the desired ground path. At 150 knots in the C-20, we time for 12-15 seconds when overflying the landing runway at a 90-degree angle prior to turning downwind. Then, we again time 12-15 seconds abeam the touchdown point to start the base turn. This keeps us about two miles from the runway—well within our 2.3 nm limit. Apply similar techniques for your aircraft's specific maneuvering speeds.

If you can circle at an altitude above minimums, do so. If you must circle at minimums, remember that the runway won't be in the same spot on the windscreen while on downwind. You're lower than the normal VFR pattern and, the higher the aircraft category, the lower the runway will appear on the windscreen. You must adjust for this.

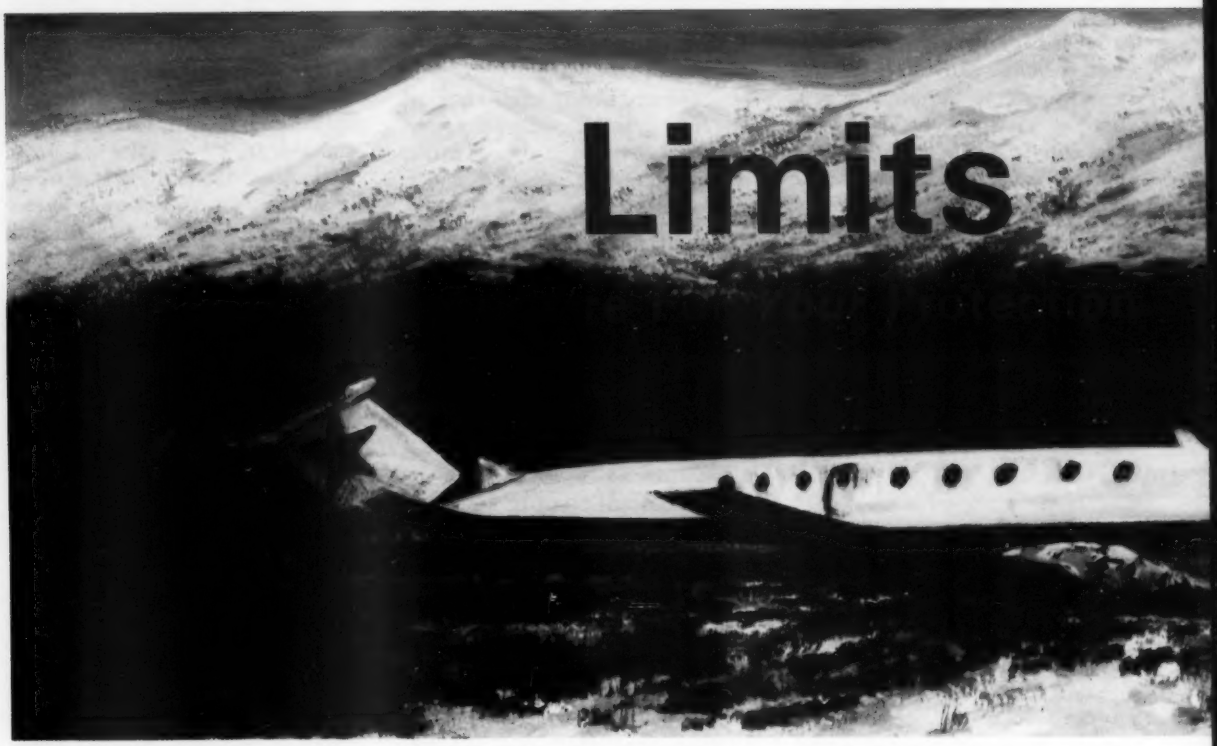
Finally, descend below minimums only when you intercept the normal glidepath. If you descend late, you may not have the altitude to recover from the high speed dive; and, at the other extreme, it's tough to go around from your "red over wheat" approach—especially when the wheat is tall.

What if I divert, you say—and don't have a VFR chart? If there is any question, ask for and fly a published IFR approach. Study it well. Treat every published altitude like there's a granite rock just below it. Only descend when on a published segment of the approach. If you must circle, remain within the required distance to the runway for your category.

I challenge instructors to have their students practice circling approaches from unplanned conditions. If traffic permits ask for a circle when a straight-in is planned or ask for a different runway at the last minute. Teach procedures and techniques that insure safety. Pay attention to crew briefings to detect any casual application of published obstacle information.

Be ready for your next circling approach. If you're not, low altitude maneuvering could lead you in circles that end abruptly. That's why I used "Latin" to describe only some potential hazards you might encounter—it's a *dead* language. I admit to learning something way back in Army ROTC days. They called it the "five Ps." PRIOR PLANNING PREVENTS POOR PERFORMANCE. Plan ahead, and execute the circling approach with the espect it deserves. ✈

Maj. Hector R. Alvarez has accumulated 4,500 flying-hours in the C-20, B-52, CT-39 and T-38. He is currently Chief of Current Operations in the 89 MAW, Andrews AFB, Md.



Limits

Each aircraft in the MAC inventory has a Dash One containing several pages of limitations for that particular aircraft. As crewmembers, we dutifully memorize this vast array of numbers, ever-ready for the next ASET test or checkride. But knowing these limitations for tests or checkrides is not the most critical part of a crewmember's job, it's applying them to our everyday tasks on the flightline.

The critical nature of limits was tragically demonstrated 23 November 1987, when Ryan Air Service Flight 103, a Beech (Be) 1900C airplane, crashed on approach to Homer, Alaska. Two crewmembers and 18 passengers died. Three, seriously injured, passengers survived.

FLIGHT HISTORY

Ryan Flight 102 was a regularly scheduled intrastate passenger flight from Kodiak to Anchorage, with intermediate stops in Homer and Kenai. The flight departed Anchorage, with full fuel tanks, at 1605 and arrived in Kodiak at 1709.

In Kodiak, the flight was redesignated RYA 103 with the same flightcrew. Seventeen male passengers, many of them hunters, and two female passengers boarded the airplane and occupied the 19 available seats.

Inbound cargo was removed and no fuel added. The Kodiak station agent stated that the First Officer asked the airplane be loaded "with 1,500 pounds of cargo." The agent thought the First Officer's request was unusual because previous Be 1900 pilots, when operating with a full passenger load, had asked for 1,100 or 1,200 pounds of cargo. The station agent also said the First Officer told her, "Before we could get the 1,500 pounds on board, it would bulk out."

The baggage loader stated he loaded the cargo compartments with the Captain's and First Officer's assistance. In addition to suitcases, gun cases, frozen crabs, and two dogs in kennels, cargo included "approximately 13-14 pieces" of packaged venison weighing 795 pounds. Teletyped load information from the Kodiak station agent to the Homer station agent indicated 160 pounds of cargo was destined for Homer, 1,010 pounds for Kenai, and 267 pounds for Anchorage (a total of 1,437 pounds).

After loading cargo, the baggage loader stated

the tailstand was "about one inch from the ground," and the lowest he had ever seen a tailstand. He stated that typically the tailstand came to within "3 to 4 inches, maybe more" of touching the ground.

At 1737 Alaska Standard Time, RYA 103 contacted Kodiak tower for its instrument flight rules (IFR) clearance to Homer. Anchorage Air Route Traffic Control Center issued the clearance to RYA 103 through Kodiak tower. Scheduled flight time to Homer was 33 minutes.

An arriving passenger on RYA 103 testified he thought the airplane would "never become airborne" during takeoff. He said that after the main gear lifted off, the airplane fell back to the runway and "accelerated for about another 15 knots" before becoming airborne. The passenger also stated the airplane seemed to climb out rather steeply.

At 1810, Anchorage ARTCC cleared RYA 103 to descend to and maintain 6,000 feet and to expect an arrival delay at Homer due to a preceding IFR aircraft. Anchorage cleared the flight to hold on the Homer localizer, south at 7 DME, and to expect further clearance at 1825.

The other airplane cancelled its IFR clearance at 1819, and RYA 103 was cleared for the localizer/DME approach to Runway 3. At 1824, RYA reported a 2-mile final. At 1825, the Homer Flight Service Station specialist reported a strong emergency locator transmitter signal on 121.5 MHz.

Ground witnesses described RYA 103 when it was on short final approach to the Homer airport. Its wings began to rock back and forth and then it dropped steeply to the ground in a rather flat attitude. The airplane struck the airport perimeter fence before sliding to a stop on its belly.

ANALYSIS

The National Transportation Safety Board (NTSB) investigated this accident and discovered that the airplane's leading edges were coated with up to three-eighths of an inch of rime ice when it crashed. Although any ice accumulation would have affected the airplane's performance, the Board believed that under allowable CG loading, the amount of ice found would have had only minimal effect on the airplane's controllability. For example, the airplane flight manual recommends that for optimum de-icing performance, one to one and one-half inches of ice be allowed to accumulate before activating the airplane's de-icing boots. During icing certification tests, no significant differences in flight controllability or handling characteristics were noted with one and one-half inches of ice on the leading edges. Consequently, because considerably less ice was found on the airplane, the Board concluded that ice accumulation on the airplane did not cause the accident.

Investigation results indicate RYA 103's control loss resulted directly from an excessively aft CG. The out-of-limits CG occurred because the aft cargo compartment had been loaded with cargo weighing between 1,600 to 1,800 pounds. With the passenger and fuel load present on RYA 103, any cargo weighing more than approximately 850 pounds in the aft compartment would have displaced the CG beyond the limit. The CG would have moved still further aft as the airplane consumed fuel.

Total cargo weight, including carry-on articles and the two hunting dogs, was 2,283 pounds. Assuming an allowance of 150 pounds for carry-on articles, RYA 103 was overloaded about 600 pounds beyond the First Officer's request. This resulted in a CG 8 to 11 inches beyond the aft limit.

The Board believed the baggage handler may have become confused when the First Officer said,

"Before we get the 1,500 pounds, it would bulk out." The accident might have been avoided had the airplane been loaded in accordance with the First Officer's request of 1,500 pounds. A 1,500-pound cargo load, assuming 250 pounds in the forward compartment, would have resulted in a CG three and one-half inches aft of the rear limit. According to flight test results, even with the CG this far aft of the limit the airplane would have been controllable.

However, flight test results also indicated that a similarly loaded Be 1900, with a CG approximately 7 inches aft of the limit, could suffer a control loss (pitch-up), particularly during approach with full flaps extended. The effects of the extreme aft CG could have further adversely affected airplane control since required pilot input on approach would have exacerbated, rather than alleviated, the airplane pitch-up tendency. That is, the combination of slower airspeed, extended flaps, and power changes the crew used to bring the airplane into an approach and then a landing configuration would have increased the already dangerous tendency of the airplane to pitch up beyond the pilot's ability, irrespective of pitch, power, or flap setting changes, to regain pitch control.

"Neither the Captain nor First Officer fulfilled his responsibility. . ."

The fact that the gear was found in the down and locked position, the right flaps in the 7 to 12 degree position, and the stabilizer trim in the full nose-down position, indicates the pilot may have attempted to raise the flaps after initially selecting full flaps. He may have recognized the adverse effects of extended flaps on the airplane's stability. However, because of the extreme aft CG, full flap extension could have exacerbated the airplane's upward pitching tendency beyond the capability of the pilot to counter even if he used maximum nose-down elevator.

As the flight test pilots explained, had the Captain added power to regain airspeed lost following full flap selection, and the resultant airplane pitch up, his ability to control the airplane as it continued the pitch-up moment would have been reduced. The Captain at that point may have added still more power and/or retracted flaps in an attempt to either execute a go-around or reduce the airplane's pitch. However, either action would have further compromised airplane control since adding power would have continued the pitch-up tendency, and raising flaps would have increased the airplane's stall speed. In either event, RYA 103 would have experienced a full stall from either the increased pitch or the retracted flaps, resulting in a rapid vertical descent. In fact, the nature of damage to the airplane, full nose-down trim, intermediate flap position, and witness descriptions of the airplane's attitude when it struck the ground support this scenario. Consequently, the Board believed that, because of the extreme aft CG, and pilot actions to regain airplane control following flap extension, the airplane stalled as the pilot raised the flaps.

Despite the fact that the airplane was overloaded beyond the First Officer's request, the pilots were responsible for accurate weight and balance computation. Neither the Captain nor First Officer fulfilled his responsibility for determining airplane loading and calculating an accurate weight and balance before departure. Although Ryan's procedures clearly spelled out appropriate methods for determining weight and balance, the investigation demonstrated these procedures were not followed.

PROBABLY CAUSE

The National Transportation Safety Board determined the probable cause of this accident to be the flightcrew's failure to properly supervise airplane loading, which resulted in the center of gravity displacing to such an aft location that airplane control was lost when flaps were lowered for landing.

APPLICATION TO MAC

MAC crewmembers can learn lessons from this accident that go far beyond the mechanics of loading an airplane. We must focus on the fact and concept of aircraft limitations and their application to our daily operations. Limitations weren't established to prevent anyone from doing his or her job, but to provide boundaries that define how to do a job *safely*. Damage done to an airplane by consistently exceeding flap or gear limit speeds, for example, may be unnoticeable for a long time. But it's there. The old saying, "For every action, there is an equal and opposite reaction," never held more true than in this case. Remember, when dealing with airplanes, letting one thing go will definitely, absolutely, cause something else to reach up and grab you. And it will *always* happen at the worst possible time. ✈

Adapted From *NTSB AAR-88/11*

Dangerous When Wet

A lesson in hydrodynamics.

"Wow! I've never seen it rain like that," exclaimed 2nd Lt. Sean Cartwright. "How about you, Captain MacKenzie?"

"A couple of times in the tropics. But not in this area," Capt. Brad "Mac" MacKenzie replied as he turned away from the window and his view of the torrential downpour drenching the flightline. "I hope the parking lot drains well. My car won't make a very good boat."

"Don't worry. The weather folks just assured me this line of thunderbumpers will move off pretty soon. We might even make it off on time and get you two your local pro sorties after all," remarked Maj. John "Duke" Waynoski as he strode into the crew briefing room.

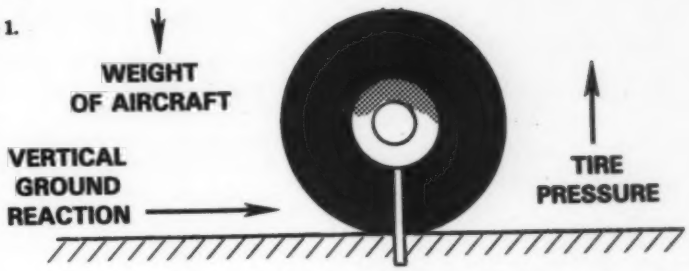
"Heaven forbid a little storm should keep the old goat ace IP from completing his mission," Mac replied in his most sarcastic tone.

"That's right, Buster, and for that 'old goat' crack, you're flying first and I'm going to wring you out and hang you up to dry today."

Lieutenant Cartwright stood open-mouthed, watching and listening to them cut each other to shreds for another 30 seconds, when they both broke out in good-natured laughter.

"Have a seat, Lieutenant. I taught 'Buster' here everything he knows about flying that bucket of bolts sitting out on the ramp."

Figure 1.



(a)

"Well, I've picked up a few other tricks here and there, but for an 'old goat,' he does pretty well," Mac retorted.

"Even we old goats need refreshers on some topics, so I thought we'd forego the usual question and blank stare session and discuss something, what with the rain today, that's really applicable—hydroplaning.

"Lieutenant, you're brand new to 'Big MAC,' how much training have you had on hydroplaning?"

"Some discussions in training, and of course I read what was in the Dash One. But not really a whole lot, Major."

"That's about the same answer I've heard from most of the other brown bars in the squadrons. I got started on this after I read a fighter mishap report in the safety office. By the way, I also taught 'Buster' here everything he knows about the safety business."

"Not everything. *I* could spell safety in the first grade," Mac shot back.

"Right, but only after you repeated kindergarten. Where was I? The fighter landed after a precision approach. Weather that day consisted of light drizzle and fog. He was on speed at 143 knots, and landed about 800 feet down the runway. His speedbrakes were fully open, and the brakes checked good shortly after touchdown. He retracted the speedbrakes and engaged nosewheel steering at about 70 knots. With about 1,000 feet remaining, at an estimated 30-40 knots, the pilot applied brakes. There was no discernible effect. He released and reapplied brakes, and the nose started drifting right about 30-35 degrees as the airplane entered a left skid.

"Skid marks and rubber deposits indicated the airplane started hydroplaning 430 feet from the departure end. The pilot again momentarily released and reapplied brakes, partially correcting the skid. But, it was too late. The airplane departed the prepared surface about 15 degrees right of runway heading. The

nosewheel traveled 45 feet across the barrier housing pad and 32 feet in the mud before failing. The airplane continued 12 more feet on its nose and main gear before severing a one-foot diameter steel storm drain buried 12 inches below the surface. It stopped after traveling another 17 feet. The pilot egressed okay. The airplane was damaged beyond economical repair."

"How could he be that slow and still hydroplane, Sir?"

"Very easily, and I'll get to that. But we're going to review each type of hydroplaning. As in any hydroplaning discussion, we'll lead off with the most well-known: dynamic hydroplaning. It's caused by the buildup of hydrodynamic pressure at the tire-pavement contact area. This pressure creates an upward force that effectively lifts the tire off the surface. Total dynamic hydroplaning occurs when there is complete separation of tire and pavement. This usually causes complete wheel stoppage and loss of control.

"I have some pictures of what happens. Mac, you should recognize these from Professor Charles Dole's book *"Flight Theory and Aerodynamics."* We used it in safety school. In Figure 1, you'll see a tire in a static condition, with no water on the runway. As the tire starts moving to your left in Figure 2, ground friction causes a spin-up moment resulting in wheel rotation. When the tire is rolling freely at a fixed speed on a dry runway, the

Figure 2.

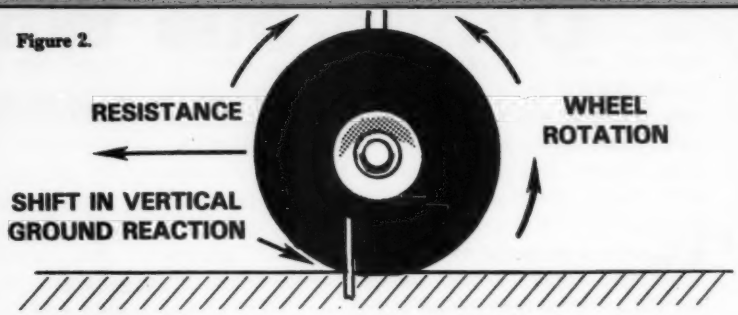


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Figure 3.

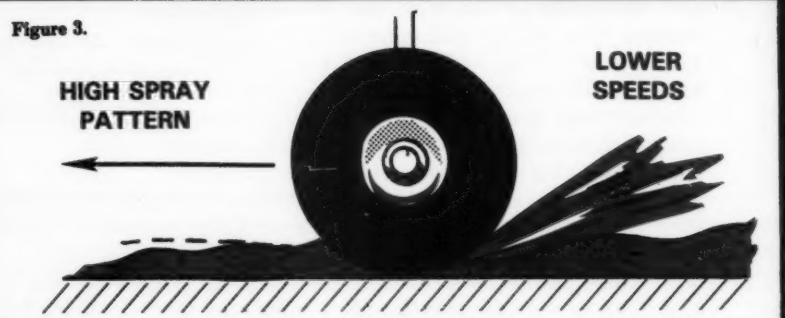

Figure 4.

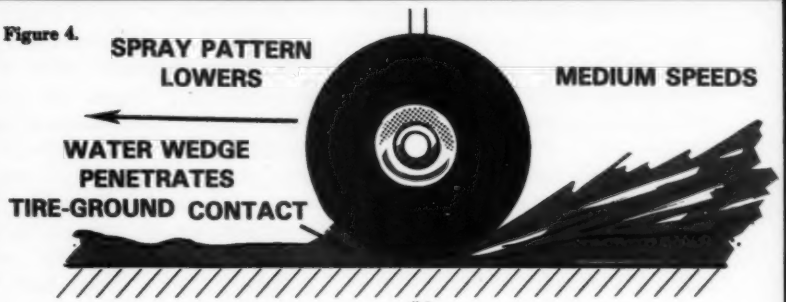

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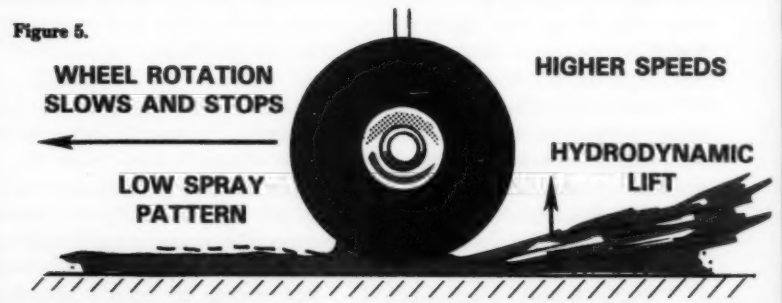
Figure 5.



vertical ground reaction shifts forward of the axle and a spin down moment develops that offers resistance to wheel rotation. When these two moments are equal, the wheel is turning at constant RPM.

"Introducing water on the runway leads to dynamic hydroplaning. Deep fluid on the runway creates additional drag on the tire as it's displaced from the tire's path and produces a high spray pattern, as shown in Figure 2. As the aircraft's forward speed increases, in Figure 4, the spray pattern thrown up by the tire lowers and the wedge of water penetrates the tire-ground contact area, producing a hydrodynamic lift force on the tire. This is partial hydroplaning. As speed increases, the spray pattern becomes flatter, and the fluid wedge penetrates farther into the ground contact area, until at some high forward speed, complete separation of tire and runway takes place, causing total hydroplaning. As you can imagine, this could present some real problems if you had to abort a takeoff at this point. Makes landing tough, too. No ground contact—no tire rotation—no brakes. Simple."

"Simply dangerous," Mac interjected.

"But this isn't what happened to the fighter, is it, Major?"

"Evidently not, Lieutenant. The board reviewed the aircraft's Dash One and found it provided pilots, at least at that time, only with a discussion of dynamic hydroplaning. Dynamic hydroplaning speed would have been 88 knots. Most pilots they surveyed believed that all types of hydroplaning only happened at higher speeds and not at all below 50 knots. Older, more experienced pilots had adequate knowledge of reverted rubber and viscous hydroplaning, mostly attained through first-hand experience."

"I'd *heard* of reverted rubber and the other type, what is it, vicious? But there wasn't any discussion of them that I can remember."

"Well, it *can* be vicious, but the word is *viscous*. Even though dynamic hydroplaning is more widely discussed, viscous is actually more common. It can occur at lower speeds and at lower water depths than dynamic, usually when the pavement is lubricated by a thin film of water. You've probably noticed the same thing driving your car at the beginning of a light rain. It coats the road with a greasy slick as it combines with the dirt and grime that accumulate on the road surface. The tire is unable to penetrate this film, and partially loses contact with the pavement. It usually occurs on smooth runway pavements or where tire rubber deposits are present, most often in the touchdown area, where a thin water film significantly reduces the coefficient of friction. The ends of the runway can have as much as 25 percent lower coefficient of friction than the middle. Here, you can see that in Figure 6.

"It's almost time to go, so we'll wrap this up by discussing reverted rubber hydroplaning. The guy in the fighter experienced this as well as viscous. Reverted rubber hydroplaning occurs when heat generated during a locked-wheel skid reverts tire rubber to a molten or unvulcanized state. You'll normally see white streaks on the runway after experiencing this type. It usually occurs after an episode of viscous hydroplaning when the tire again makes contact with the runway. But, the wheel isn't turning, stays in a skid, and starts the reversion.

"What can you do to prevent hydroplaning? First, plan on it, especially at the ends of the runways and in touchdown areas. Second, check the Enroute Supplement for hydroplaning warnings—they're in there. Third, fly your airplane on speed. Five or ten knots hot on landing can be just enough to put you in the weeds off the end of the runway. Last, study the problem—the Dash One, One Dash One, and many other sources have good info on hydroplaning.

"Well, it's time to go," Duke concluded, turning to the window. "Hey, Buster. Isn't that your car floating around the parking lot?"

★

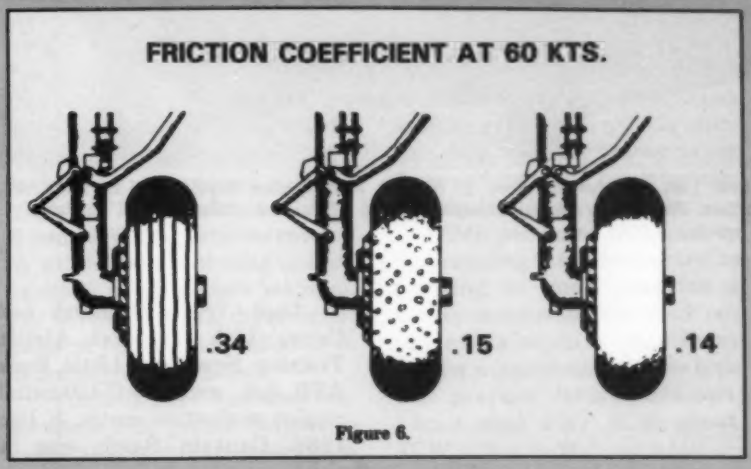


Figure 6.

Excellence in Airmanship

First Row: Left to right: 2Lt Troy T. Waddell, student pilot; Capt. Travis D. Balch, AC. Second Row: SSgt. Clyde Meador, Loadmaster; and TSgt. B. J. Wilson, Flight Engineer.

Capt. Travis D. Balch and Crew, 16th Tactical Airlift Training Squadron, Little Rock AFB, Ark., were on a C-130 initial copilot evaluation sortie, 8 Dec 1988. Captain Balch was in command under a cross evaluation program whereby evaluators from two different units periodically check each others' students.

The emergency began as 2d Lt. Troy T. Waddell, student pilot, was performing a touch-and-go landing. As he rotated the aircraft for takeoff, the Number 1 propeller experienced a severe overspeed with corresponding loss of engine torque, power, and thrust. The aircraft yawed violently left due to asymmetrical power from the good engines and induced drag from the overspeeding propeller. TSgt. B. J. Wilson, flight engineer, immediately identified the malfunction and stated "Number 1, 107 percent, zero torque; shut down Number 1." The noise generated by the malfunction could be heard by tower personnel.

Captain Balch immediately assumed aircraft control and added immediate inputs needed to correct the sideslip and increase airspeed to above air minimum control speed. The sideslip was so severe that power on Number 4 engine needed to be reduced toward flight idle to gain directional control of the aircraft. Captain Balch directed Lieutenant Waddell and Sergeant Wilson to shut down Number 1 engine as he adjusted Number 4 engine and regained directional control. SSgt. Clyde Meador, loadmaster, rapidly confirmed the propeller fully feathered. Captain Balch realized the aircraft was still just barely above the 12,000-ft runway, and elected to set the aircraft back down with 5,000 ft remaining.

The airmanship and judgment demonstrated by Captain Balch and crew well deserve the Excellence in Airmanship Award. Congratulations from *TMF*. ★

What the Heck is *TMF*?

Every so often we like to resurrect *The MAC Flyer's* mandate and review some of its more significant aspects with you, our loyal readers.

The pubs folks call us MACSP 127-5, which means we're a MAC Specialized Publication. *TMF* is, by a mandate set forth 35 years ago this month, the command's "primary medium for conveying professional and educational flight safety material" to every one of you. We aim the bulk of our articles at crewmembers and direct support people. So, our policy is to limit magazine content almost exclusively to flight safety-related topics.

We've been a flight safety publication from the very beginning, so for that reason we're in the MAC Inspector General's chain of command. We are *not*, and never have been, a public affairs publication. Again, we cover flight safety topics—how crewmembers overcame a critical inflight emergency; human factors; materiel failures; or professional readings. We keep pure press releases out of our feature articles. We do use examples of people who "done good" (or "not so good") to emphasize pertinent safety points. Our aim is not to make public jackanapes out of anyone, but simply to give you the opportunity to learn from others' triumphs or tragedies.

Unfortunately, mishaps do occur, and precluding their recurrence is our aim. Most of the time, we're able to disguise military mishaps so well even the principal players have difficulty recognizing themselves. What's important is telling what happened and how it can be prevented. Furthermore, AFR 127-4 directs we sanitize Air Force mishap reports to protect their "privileged" status. We don't need someone using a *TMF* article as "Exhibit One" in a lawsuit. Other sources, such as National Transportation Safety Board (NTSB) reports, are covered by a different set of rules and are basically public domain material. For obvious reasons, the crosstell value of commercial incidents is extremely useful to us.

You may have wondered why so much time passes between a major mishap and its coverage in the magazine. Well, there are two factors influencing timeliness. First, safety investigation boards work at a deliberate pace, and it takes time for their official determination to become public. Secondly, other than our "After Deadlines," everything printed in *TMF* is normally scheduled at least *three months* ahead of the published date.

We *love* getting inputs from the field in the form of articles, reports, etc., however, we do reserve the right to make editorial changes which we feel will expand the material's scope without altering the intended meaning. We will also participate as safety observers on exercises if requested to do so, and there is a safety story unfolding. There's a real world out there and we enjoy opportunities to keep in contact with it.

TMF promotes flight safety by providing a forum devoted to bringing to your attention a variety of material from which you can learn a lesson or two. We try to offer suggestions which we hope will prevent future disasters. *That's* what *TMF* is all about. TCW ★

The 463d Tactical Airlift

Initiative and Preparation

"The 463 TAW aircraft were the cleanest C-130s observed by MSET this cycle."

C-130 wings carry themselves into war.

By Capt. Dan Dougherty
Associate Editor

A welcomed neighbor to the city of Abilene, Texas, in the heart of a 22 (Texas size) county area known as the "Big Country," Dyess Air Force Base is home of the 463d Tactical Airlift Wing. This relatively small wing, with only two flying squadrons, puts out an air division's effort when it comes to training for their wartime mission.

The right ingredients exist here. They have one of the most aggressive tactics programs I've seen during my travels with *TMF*. Furthermore, the teamwork attitude shared between operators and maintainers is by far the healthiest one can imagine existing in an airlift unit. The 463d's ability far exceeds their requirements—they're motivated, prepared, and all part of a team where total effort far exceeds what they could do as individuals. Indicative throughout this visit, leadership was evident, from the wing commander to the lowest level of supervision.

This wing has a proud past. It began as the 463d Bombardment Group (Heavy) in August 1943, flying the B-17 "Flying Fortress." The wing was decorated for daring raids on oil refineries at Ploesti, Rumania, and ball-bearing plants supporting panzer factories in Berlin.

Deactivated after the war, the unit was recalled to service in 1953 as the 463d Troop Carrier Wing and equipped with C-119 "Flying Boxcars." Three years later, the wing became the first unit to fly what will always be known as a "venerable" tactical airlifter, the C-130 Hercules. Subsequently, it moved to the Philippines in 1965, and was redesignated the 463d Tactical Airlift Wing in 1967.

From Clark AB, the wing flew a variety of missions supporting ground forces in Vietnam, including resupplying Khe Sanh in February 1971. Once again, the wing was deactivated that same year. Meanwhile, the 516 TAW, with its three flying squadrons, the 345th, 346th, and 347th had already moved their -130s into Dyess from Ardmore AFB, Oklahoma. In 1972, the 516th was redesignated the 463d, and this

Wing —

proud wing has operated from Dyess since.

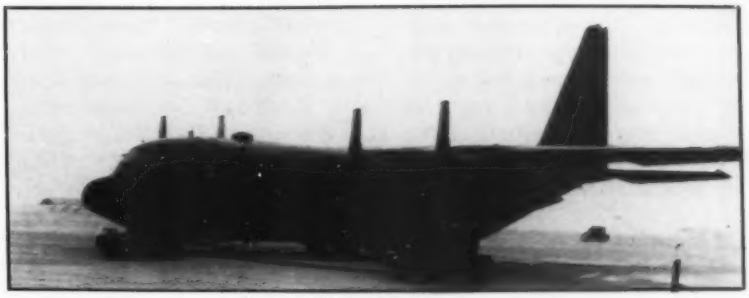
The Lone Star State, particularly Central and West Texas, has a lot to offer a military flying unit. Those great open spaces and terrific flying weather lure aviators of all types to this region. So much so that Dyess' traffic pattern and the region's low level route structure represent some of the most hazardous challenges facing the 463d.

Let's first look at the traffic pattern. Dyess AFB is the B-1 qualification school — you can imagine what that does to a traffic pattern. Furthermore, home station KC-135s and T-38s also compete with 463d Hercs for approaches and landings. Compound it even further with the fact that the 463d has a short field strip and heavy equipment drop zone west of the main runways; also, Interstate 20, a popular VFR low altitude navigation device, crosses perpendicular to the Dyess main runway extended centerline.

If this isn't enough challenge, Dyess is a popular stop for ATC's "little planes" from Sheppard, Reese, Laughlin, Randolph, and Vance. No one can deny this isn't one busy aerodrome, and the fact that you may not have realized it, is because you haven't heard of any problems there. Proof indeed that air traffic controllers and home station crews are really playing some "heads-up" ball when it comes to their flying. It really shows when 463d crews fly tactical.

If you've ever studied a DOD FLIP low level route chart for this area, you'd see what I mean. The entire state, particularly the western part, is crissed and crossed by hundreds of IR, VR, and SR low level routes. Compounding this congestion is a significant number of civil fixed-wing and helicopter traffic using the same airspace "just to get around." Here again, you haven't heard about it, and with good reason, 463d crews are working at it. During their flight planning, you can find them phoning all the route coordinators to deconflict. In flight, their heads are on swivels, searching for air traffic.

Another proactive method used to make the skies safer occurs during Dyess' annual air show. The base hosts a civil aircraft "fly-in." They bus civilian pilot guests to the officer's club and put on a safety show that not only educates but demonstrates the base's interest and commitment to sharing that big Texas sky with them. After all, around these parts, it's the neighborly thing to do!



Always Ready

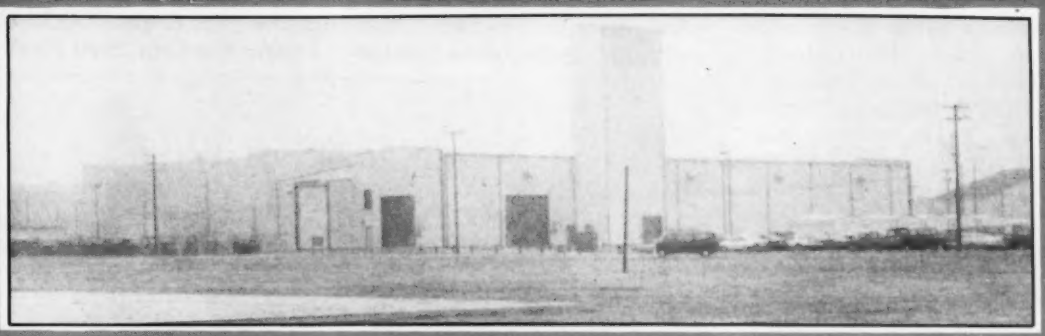
While airspace congestion is definitely a concern for Dyess' Herc crews, they made it a manageable hazard while continuing to train. This wing actually enjoys an exceptional location marked by unlimited diversity. From home plate, flying west gets them mountainous terrain; eastbound provides dense forests or a large expanse of over-water; and north places them over the navigationally challenging, featureless Great Plains.

Their mission is just as diverse. The 463d is not restricted to any one particular mission. They are not primary to any major ground force, formal school, or specialized tasking—theirs is universal, coast to coast, continent to continent. The wing participated in BRIM FROST during this year's record-breaking Siberian Blast, while simultaneously supporting tasking to Central and South America. They support VOLANT PINE (European Rotation) and SOLL I while operating a very impressive tactics training program from home station.

They call it the Unfamiliar Route Program, and its calling card is "The Route of the Week." I spoke with Capt. Brett Haviken, Chief of Combat Navigation, in wing tactics, about this fascinating training program. The program was totally self-initiated to combat the complacency occurring whenever crews repeatedly fly the same routes. It positively enhances training by continually offering challenges.

You start with something Dyess has that probably most other wings don't—10 different drop zones within a 200-mile radius. Then you totally open up the possibilities by using a large Low Altitude Tactical Navigation Area to create your own routes. It works like this: The wing tactics shop designates a DZ and passes

1st Military Aerial Port Squadron Building is the only one of its kind—especially designed by aerial porters employing state of the art layout. It increased production considerably by simply mastering a basic flow principle—in one end, out the other. It even has its own cargo chute hangar. While I stood there, I observed three long rows of rollers, all loaded with prepared airdrop loads. They consisted of 21 heavy equipment, 40 containerized delivery, and seven LAPES pallets—the effort represented a full week's worth of training loads for the wing.



that information to the squadron. The only restriction: the route must take 50 minutes to an hour.

The squadron then gets to work on it. It's usually planned as a three-ship, with a splitup at the pre-IP, or about the last third of the route. All three practice modified slowdowns and combat escapes as they drop their loads with 2-minute spacing. How often do they participate in this quality training? Twice a day, morning and night, Monday through Friday, every week. They drop actual loads or training bundles, and it counts towards the crew navigator's Circular Error Average.

When possible, their mission becomes a fully developed Combat Aircrew Training (CAT) sortie. A typical scenario begins with a heavyweight departure, followed by a short tactical route for a heavy airdrop on the Dyess drop zone, then a short field landing. It then shifts gears as the flight departs on one of their "routes of the week," ingressing, low level, for another airdrop and, possibly, another short field landing.

This well-thought-out, exceptionally well run program allows crews to try various formation configurations and always includes an off-course maneuvering event (ie. SAM call that forces crew to deviate from course and reorient themselves). Further adding to realism, the mission operates with simulated airborne command and control and AWACS calls while following an Air Tasking Order and Air Order of Battle. To keep it challenging, CAT scenarios come in four levels of difficulty. Each level increases ground threat sophistication, mission planning complexity, and number and type of air-to-air threats.

Much of this was a result of a 463d initiative and further emphasizes this wing's commitment to their wartime tasking. This is truly "high quality training," and it's all done safely. But that couldn't be the case unless there was total teamwork through

the entire wing. I found proof of that when several crewmembers bragged about their maintenance.

The crews are not the only ones who believe their maintenance is outstanding. Last December, HQ MAC's Maintenance Standardization and Evaluation Team (MSET) rated them with that very score.

As the maintenance equivalent to an Aircrew Standardization and Evaluation Team inspection, the team thoroughly inspects each MAC maintenance organization on a 24-month cycle. Equipment is scrutinized, aircraft thoroughly inspected, and individual technicians, supervisors, and quality control inspectors are evaluated while performing tasks. The inspection takes a grueling two weeks.

Some of the MSET's comments: "The exceptional Basic Post Flight Inspection score of 99.38 is the highest achieved in the past year." "The outstanding average score of 95.38 on the six quality verification inspections is the highest overall score in the past two years." And this one really tells a story: "The 463 TAW aircraft were the cleanest C-130s observed by MSET this cycle."

Another indicator of this unique wing's team attitude is that the Deputy Commander for Maintenance sits as a member on all wing aircrew certification boards. Wing boards are convened for all crew position flight examiners and instructors, and aircraft commanders. Col. Albert R. Hart, 463d Commander, explains why: "We're a team here. We don't have a maintenance problem or an operations problem, we have a wing problem." This technique has a profound effect on the individual being certified, as it impresses upon him the importance of the ops/maintenance teamwork that must exist for a combat flying organization to function.

Another example of ops/maintenance teamwork is an additional checklist maintenance debriefers run with the aircrew after the flight. It's a group of 18 questions soliciting yes or no answers—questions such as: Did you have a fuel leak temporarily repaired? Did you have any situation that could be determined a mishap? Did you fly over salt water below 3,000 ft? A "Yes" answer to any question directs the person to an appropriate action.

Answering "Yes" to one particular question, "Was your mission complete?" will be followed by the question: "If No, was it due to maintenance?" A "Yes" answer here directs you to the 463 TAW Form 22. My curiosity overwhelmed me. "May I see one of these forms?" I asked. The form's title, Investigation Record, is managed by Quality Assurance (Maintenance's Stan/Eval). It's used to follow-up any repeat or recurring write-ups, initiate a record on any in-flight emergencies or air/ground aborts, and all-around precise tracking of the health of the wing's airplanes and maintenance. It's just another example of a locally initiated procedure further demonstrating the entire wing's commitment not only to mission, but to excellence. But good ideas like these never "just happen." Many of us walk around with them in our minds all the time. Who among us hasn't thought that such and such would be a whole lot easier if we only did . . .? In other words, what spawns good ideas, initiative, and successful programs? The answer—quality leadership.

It's a certain quality of leadership that not only guides, but motivates. Practically speaking, it is the ability to encourage creative thought while still establishing the bounds. This style was evident in the 463d. I attended an operational readiness exercise outbrief, while visiting Dyess, and had an opportunity to listen to some of Colonel Hart's philosophy.

With an operational readiness inspection around the corner, Colonel Hart told his wing with sincerity, "There is no mission today in this command that requires anybody to go one foot below minimums—if we ever have one, we'll tell you." While you may have heard that one before, chances are, you haven't applied Colonel Hart's definition of minimums.

"Minimums are exactly that," according to Colonel Hart. "I never expect that because the written minimum is 200 ft, half a mile, or whatever, that a crew must fly to those limits. Personally declared minimums are a function of real time circumstances." He expects his crews to apply circumstance-driven judgment during all phases of flight. I know he means it too. While he impresses upon his crews to operate within real-time capabilities, he also trains them to be very capable.

One of his solutions to risk mangement is to know your procedures. He considers effective communication the glue holding us all together. Most interesting is his view of safety: "Box scores and departure reliability are only management indicators. I measure this wing's success by its safety record. Unfortunately, you cannot always see your successes in safety, but your failures stand out dramatically. If procedures are followed and good judgment applied, not only will the indicators look great, but our valuable resources will be preserved to continue training for our mission."

Those last five words sum up my impression of the 463d Tactical Airlift Wing and what they excel at—continuing to train for their mission. ✈

An Unwanted Assignment

Do safety meetings turn you off?

By Maj. Grover C. Tate, Jr.
USAF, Ret
Joshua, Texas

I was almost halfway home when I remembered the scheduled flight safety meeting, so I did a 180 and headed back to the base. Why do they have these things at day's end? Why not during normal duty hours? Why on Friday afternoons? *Why even have them at all?*

What will the boring subject be today, and what will it possibly do to help me fly better or more safely? Last month it was some weenie doctor of something or another, talking for hours about nuclear fallout or something like that. Before that it was some clown from who knows where, with reams of statistics, accident rates, causes (mostly pilot error, of course), trends, and all kinds of administrative stuff. Then there was the post crash guy who gave us a couple of hours about the trauma we would experience after an accident . . . .

True to what I expected we were told about *some sort* of a new navigation system that *might be* put into our aircraft *sometime* within the next twenty years. According to the tech-rep who made the presentation, this new system would do everything including warming up flight lunch soup cans. After his program we had a short presentation about how the Air Force utilizes computers. This was a real snoozer and I was doing just that when the "big surprise" gave me the "big wake-up."

The wing commander briefly

1988 MAC FLIGHT SAFETY WRITING CONTEST SPECIAL CATEGORY

described how we were at the mercy of impersonal computers. He drew little diagrams to illustrate how selected data could be fed into these marvelous machines and desired answers would come out the other end. We knew all this stuff and were sort of lulled into a no-defense position.

"For example," the commander announced, "we need a new wing Aerospace/Flight Safety Officer. I put everyone's name and record in this little machine and like magic the machine gives me the name of the most likely candidate. As a matter of fact, I have just done that very thing and the machine indicates this honor now belongs to Maj. Harley King."

There was wild applause. I fell into deep shock when I realized I was the chosen one.

"If the lucky major will advance to the stage I will present him with his credentials after which he'll make the traditional acceptance speech," the commander continued.

Tears stung my eyes as I blindly made my way to the stage and did an excellent klutzy climb up the stairs. This could not be happening to me, I thought. I am a line pilot. I fly the oceans to exotic places. I am an aircraft commander, not a student of bureaucracy or administrative stuff. There is a wreath around the star on my wings. These extra duties belong to those slick-winged guys right out of the Academy. The computer goofed so I'll accept this thing gracefully for the moment and get it all straightened out on Monday. I thanked the CO, mumbled a few incoherent words of acceptance and fled the premises. I even bypassed the little gathering usually held in the club—as a wake after these meetings. Terrible thoughts of being a sacrificial lamb assaulted me as I drove home and searched for some grievous thing in my past that had fostered such a disaster.

My lovely wife was all wired for a pre—weekend dinner outing and was all bubbly as I lurched unhappily through the door.

"A good day?" she asked.

"No! NO! A thousand times, NO! A great tragedy has overtaken me. I've been ambushed at the pass. I've been blindsided. My accomplishments were overlooked and I'm being crucified for some unknown transgression or unrecognized ugly personality trait. I'll soon be the most unpopular man on base. You'll have to resign from the OWC as you'll no longer be welcomed there," I sobbed, burying my tragically contorted face in my hands.

"Did you get demoted? Are we being reassigned to Iran? Did that inspector turn you in for having candy bars in your flight case where the charts belong? Did the flight surgeon discover you had taken four aspirin when he said to take only two? Maybe all of those things. Stop blubbering and let me join you in this chamber of horror," she pleaded.

"Worse," I answered. "Worse than all those things combined. Worse than the jungle-rot I suffered in Vietnam. Worse than survival school and even worse than an upgrading checkride. Even worse than having to listen to a Don Ho recording. Depth of depths, I'm to be the new *Wing Flight Safety Officer* . . . a fate worse than having to RON at Chitosi, Japan," I moaned.

"Hey, that's great," she said. "Now when you retire you can do commercials and stuff like General Yeager. We'll be rich and famous."

That optimistic observation did nothing to soothe me—even the feathers in my silver wings were ruffled. I spent the weekend hiding in the garage writing down thousands of reasons I was not suited for the lofty position to which I had been appointed. By Monday morning I had such a defensive case constructed that it could probably win a Supreme Court decision.

I pleaded my case with the commander. He didn't even stop his "carpet putting" practice to acknowledge my pleas. Well, he did look up once when my racking sobs disturbed his putting. I also thought I had his attention when he sat down at his desk but he only wanted to throw the balled-up, tear-stained Kleenex I had piled on his desk through a little basketball hoop above his wastebasket. When he finally realized I was on the verge of nervous collapse, he opened my personnel folder and started a recital with ominous over (under) tones.

"Degree in aero engineering, maintenance officer school, all survival schools, *and* the mishap investigation course at USC from which you were selected as the outstanding graduate. What do you think of them apples?" he asked without a trace of a twinkle in his eyes.

It was that USC course that did it, I thought. I only went there because it was a good TDY and close to Disneyland and all kinds of fun attractions. Now it was turning on me and will probably be an albatross around my neck for the rest of my life . . . .

"Yes, sir. I understand you, loud and clear. I'll do my very best," I stammered. A curt dismissal, a crisp salute, and I was alone in the hall with nothing but the spectre of things to come.

The next few days I tried the psycho bit. I wore a Graucho Marx disguise and drove a Rent-A-Wreck car. I answered salutes with my left hand. I joined AA. I wore Buddha beads and colored tennis shoes with my uniform. I pleaded Catch 22. I put a big 8x10 picture of Lady Jane on my desk and another on my locker. It was obvious I was totally unbalanced and unfit for the safety assignment, but no one paid a bit of attention. My calls to the White House and the Supreme Court went unanswered. There was no escape, so I settled in with the new assignment.

"Safety meetings! Why have them at all?"

In a deep funk of despair and self pity I thought back to every flight safety meeting I'd ever attended and sifted through the memories of those that had really impressed me. I went through a ton of flight safety publications and compiled statistics of most accidents causes. I called the guys at USC and got the rules for getting the guys' attention at meetings and the psychological warfare in keeping their attention. My awareness of safety and potential problems increased and I was soon immersed in the program. I didn't want the troops to know how little I knew about computers so I conned some buddies into feeding the confusing contraption the best of my collected data and providing answers to my questions. I drew some spectacular conclusions and wrote a flight safety program—a magnificent thesis, I might add.

My first program was predicated on the idea that we had to be aware of everything around us so we could safely deal with situations threatening our well-being. I found a natural comedian among the troops, the type of guy who makes you smile even when he's serious. I found an ejection report at the base library in which the ejectee had observed and later reported each and every minute detail of his ejection and survival, such as the number of chickens in the yard where he landed, noticed the frayed shroud line, the number of tiles he broke on the rooftop he hit, and problems he encountered with his equipment. Although humorously written, the report was so detailed and accurate that it resulted in some significant changes in personal survival equipment and techniques. The troops enjoyed the presentation and understood the message given. I gave a short followup about awareness, a report full of wisdom to be recorded for posterity. The remarks at the club after the meeting were good, with less griping than usual.

For an encore I had a most competent flight nurse recount the glitches she encountered during several Medevac missions in Vietnam. Many guys in the audience let their memories drift back to those days and soon became active participants in the nurse's presentation. She talked of hypoxia, improperly secured litters, misunderstood clearances, navigation errors, apathy, fears, heaters that failed because of lousy maintenance, and all sorts of things that made her job more dangerous, difficult, and uncomfortable. She was a big hit, as were her programs and messages.

I really went ape with the taste of success and in the following months had one of the best programs in the Force. I had guys so aware of flight safety that I was getting OHRs for poor grammar in flight orders. We made on-time departures without compromising safety, had a low accident rate and won all kinds of safety awards. I was one proud cookie and had an ER that should be displayed in the Smithsonian. I had made a silken purse from a shattered sow's ear.

After wallowing for a year in my own success I was privileged to hand the baton of flight safety to another. The computer had selected an eager young captain with more enthusiasm for the job than his audience could digest. With a certain benevolence he announced he was going to bring more "character" to the program, more science and that sort of thing. He figured a paper by some MIT guy called "Man on a Centrufuge" would be the first program on his agenda.

I patiently listened to this guy, accepted my Commendation Medal with grace, and congratulated my replacement. *He would learn.* He would learn, the program would survive, and June and I were on our way to a new assignment in sunny Spain. ★

Maj. Grover C. Tate, Jr, a constant participant in the *TMF* Writing Contest resides in Joshua, Texas.

Flying-Hour Milestones

15,000

1 MAS
Lt. Col. Joseph C. Griffin

10,000

Det 8, 23 AF
Maj. Robert S. Swope

7,500

34 TTS
SMSgt. Charles L. Daniels
MSgt. Arne Suvatne

130 MAS
Lt. Col. James D. Recco

137 MAS
SMSgt. Armand H. LaFerriere

20 MAS
CMSgt. Raymond J. Gertner
SMSgt. Charles A. Sharp

932 AAG
Lt. Col. Michael F. Fisher

5,000

HQ MAC/DO
Wing Commander RAF
Ian S. Robertson

17 MAS
TSgt. Fred Brooks, Jr.

41 MAS
SSgt. William P. Pierce

57 MAS
TSgt. Steven A. Hondel

22 AF

Lt. Col. Thomas E. Eichhorst
Lt. Col. Robert I. Lawrence
Maj. Mark E. Bosler
Maj. Larry C. Estes
Maj. Jeffrey P. Kettrey
Capt. Steven C. Elsasser
SMSgt. Francis L. Brown
SMSgt. Richard D. McGillivray
MSgt. Michael G. Branes
MSgt. Lloyd D. Brown
MSgt. William E. Grigsby
MSgt. Bobby L. McDonald
MSgt. Paul R. Pequeno
MSgt. Leslie E. Squires
MSgt. Charles H. Tisby
MSgt. Jerome R. Washington
MSgt. David C. Woodard
TSgt. Patrick D. Cain
TSgt. John R. Henderlite
TSgt. Thomas R. A. Kay
TSgt. Larry McDonald
TSgt. Peter J. Pitman
TSgt. Shelby D. Tipton
TSgt. William E. Vest
TSgt. Todd A. Winters
TSgt. John L. Young
SSgt. Patrick J. Sims
SSgt. Robert R. Wood

73 AES
Lt. Col. Mary J. Bigongiari
Maj. Steven A. Beals
TSgt. Ronald L. Mills

118 TAW
Lt. Col. Joe E. Lyle
Maj. Ritchey C. Lyman
SSgt. Coplin W. Curtis

773 TAS
SMSgt. Henry Enriquez, Jr.
MSgt. Charles E. Bucher
MSgt. Charles R. Haworth, Jr.
TSgt. Lawrence J. Johnson, III.

129 ARRG
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Lt. Col. William P. Hagopian
Lt. Col. Russel Padula
Maj. Claude F. Roberts

137 MAS
Maj. James F. Doty
SMSgt. Joseph F. Panoski
SMSgt. Doron A. Salomon
MSgt. John A. Brocklehurst, Jr.

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Maj. Timothy R. Hoffman
Maj. James J. McKeone

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Capt. Hal B. Yarbrough

Det 5, 1400 MAS
Maj. Barry B. Besold

2,500

Calif., ANG/CC
Maj. Gen. H. R. Hall

HQ MAC/IG
Maj. Glenn D. Brady

9 AES
CMSgt. Melvin Horton
SSgt. Harold R. Campbell

11 AAS
Capt. Merrill J. Alligood, Jr.

17 MAS
SSgt. Willie L. McQuay, III

20 MAS
SSgt. Michael Polesnek

22 AF
Lt. Col. Ronald N. Jackson
Lt. Col. James R. Lipsey
Lt. Col. Larry G. Radov
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MSgt. Cris King
MSgt. Daniel J. Leist
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TSgt. Oscar J. Churchill
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TSgt. Vernon J. Illich
TSgt. Robert E. McGough
TSgt. Shailes McWan
TSgt. Kenneth A. Phipps
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TSgt. William R. Speicher
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TSgt. Jimmie O. Williamson
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Lt. Col. Gilbert J. Hager
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MSgt. Richard A. Wagner

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TSgt. Richard C. Bennett
TSgt. Larry W. Anderson

137 MAS
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Lt. Col. William W. Bowen
Lt. Col. Philip V. Buckley, Jr.
Lt. Col. Benjamin H. Conklin, Jr.
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MSgt. Laurence H. Kemp
MSgt. Louis B. Medine
MSgt. Andrew B. Reilly
MSgt. Edward P. Reside
MSgt. Edgar J. Smiley
TSgt. Merrit D. Buttles, Jr.
TSgt. Thomas G. Lavelle

143 TAS
MSgt. John Daszkiewicz

374 TAW
Lt. Col. Michael Oonk
Lt. Col. James L. White

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Capt. James D. Hilton

1402 MAS
Capt. Douglas R. Sander
Capt. Michael E. Thwaites

Det 2, 1467 FCS
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MSgt. David E. Byrd

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MSgt. Guy A. Manis
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129 ARRG
SMSgt. David J. Rhoads

166 TAG
Capt. Kenneth H. Pleasanton
MSgt. Michael K. Maykut

356 TAS
Maj. Dwane L. Ferguson
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911 TAG
Maj. Rickey D. Waddell
Capt. Joseph J. Poznik
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TSgt. John J. Jumba

Ranks and units are those at time of award. ★

The Steady Ringing of a Bell

By Capt. James H. Ehlers
50 MASq

Nov 1969

It's one thing to read a checklist, but quite often another to carry it out when your nose burns with smoke from smoldering insulation and your heart threatens to explode in your chest. The emphasis on safety procedures during inflight emergencies must be on their accomplishment in a stressful situation, rather than in the antiseptic atmosphere of a classroom or during the boring hours of peaceful overwater flight.

* * *

Capt. William Baek wished, for what seemed the millionth time, that he were two inches shorter. That would be all it would take to remove the backaching agony he felt whenever he used the sextant. The C-124 was a fairly well designed old airplane, with a certain amount of human engineering, but it wasn't built with six-foot, four-inch navigators in mind. He stood there, resembling a human question mark, trying to keep the red ball of the sun within the constantly moving confines of the sextant's bubble. Finally there was a soft click and the darkness of the shutter fell across his field of vision. Reaching out, he pulled the pins that released the sextant from its mount, closed the mount cover, and very carefully placed the sextant in its case under the radio operator's table.

The steady beat of the four large engines became muffled as he pulled his headset down over his ears and took his seat behind the scratched formica of the navigator's table.

"Pilot-Nav," he drawled over the interphone. "All finished with my shot. You can take 10 left and dodge that bumper on the ten-mile range mark."

"Okay, Bill," came the reply, "coming left to 260 degrees. How are we looking on the flight plan?"

"Pretty good, I guess. Haven't had a decent speed line for over an hour, but we were doing 230 in the groundspeed department, 10 knots better than forecast."

"Attaboy, Magellan. No headwind navigator this trip."

Bill bent over his chart and started plotting the result of the sun shot he had just completed. He had already drawn in his assumed position, so all he had to do was measure the intercept and draw his line of position.

As he reached for his Weems plotter, there was a loud noise and the aircraft yawed violently to the right. The sudden force flung him both sideways and forward. As he straightened up, he could feel a sharp stab of pain in his stomach where he had bruised it against the edge of his table.

He could tell the plane was in a rapid descent without having to look at the altimeter on his panel. Through the mental fog that enveloped his mind he could faintly hear the pilots yelling over

the interphone. He glanced over at the engineer's panel. Sergeant Harkins seemed to be pushing or pulling every lever on his table. Looking back, he could see the other engineer clamoring out of his bunk in a whirlwind of blankets and pillows.

As his senses came back to normal, Bill felt a sour taste in the back of his mouth and his stomach was giving warnings of imminent eruption.

I'm going to die! he thought, we're crashing and I'm going to die.

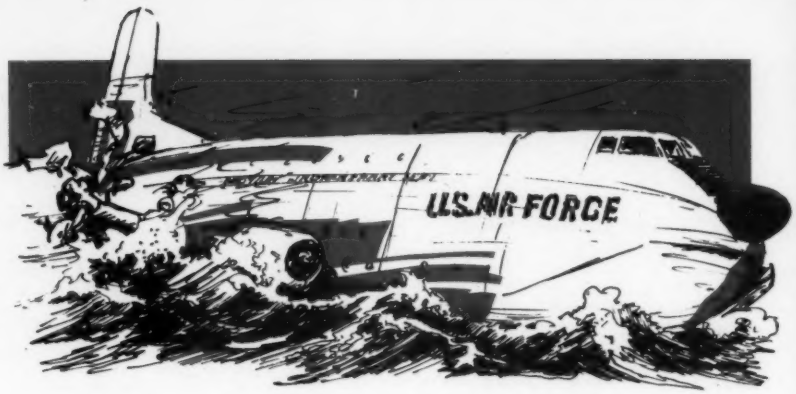
He fought to hold back the panic that was taking control of his mind. He forced himself to make sense of the sounds coming through his headset. Finally, they shaped themselves into words; words that only served to increase the sense of dread that commanded his soul.

They had lost Number 3 prop; the shaft had sheared, but Bill didn't catch the reason why; and the rampaging, free-wheeling propeller had smashed into Number 4 engine with disastrous results. Apparently there had been a fire, but it was out now. The other two engines were screaming in complaint from the extra power required of them as they labored in vain to maintain altitude. The thousands of pounds of airplane, cargo, and fuel foredoomed every effort they made. The relentless pull of gravity was sucking them ever downward to the angry, white-flecked ocean below.

"Bill!" A hoarse voice was shouting, "Bill, for Godsakes, answer!"

It came to him that he was the one being called and he heard himself replying in a weak, nervous voice he could hardly recognize.

"Yes, sir?"



"Quick, we need an emergency message. We're definitely going down—we've got ten, maybe twenty minutes."

"Right away, Major," Bill croaked.

He tried to clear his head and organize his thoughts. Message, message—must be in my bag somewhere. Oh no, checklist. Here it is. Can't get it out of this damn plastic. Oh my God, I'm scared.

His fingers were working frantically as he started filling in the blanks on the yellow form. He could hear the major talking with the copilot and the engineers, but he ignored them as best he could, trying despairingly to concentrate on completing the message.

Got to finish plotting that fix, he thought. What was that intercept? Ten away? The lines on the chart seemed to waiver and move before his eyes and his fingers seemed thick and senseless as he drew and measured.

"Criminy, nav, don't you have that message, yet?"

"I'm trying, Major, honest to God, I'm trying! Just let me alone for a minute."

After what seemed an eternity trying to think and figure and guess, he had it done. Sliding out of his seat he elbowed his way past the second engineer, and forward into the cockpit. Bill was shocked at the copilot's appearance. He was grasping the yoke with a death grip that bulged his forearms below the rolled up sleeves of his flying suit. His eyes were wide and unblinking, and small streams of sweat were flowing down both sides of his face. Bill had to punch at his shoulder twice before he turned to receive the message form.

He's just as scared as I am, thought Bill, with what was almost relief. We're about to crash and he's just as shook as I am.

Quickly, Bill glanced to the left. The major was struggling into his life vest. He too was sweating, but his face was calmer, more composed. His movements were quick but methodical as he tried to avoid tangling the webbing of his preserver. For the first time Bill was reminded that he was sharing this danger with someone else. The lost feeling that was affecting him weakened somewhat under this new knowledge, and he was able to breathe easier and his heart slowed its rapid pace.

As he weaved his way back to his desk he realized that, except for the emergency message, he had not done one thing to get ready for ditching. He picked up his checklist. A series of bumps and jars brought his head up to look at the altimeter. The hands were still steadily winding their way down to zero. He estimated their height at about four thousand feet and

forced his mind back to the checklist.

How much time, he wondered. Can I get all this done?

He wanted to call the pilot and find out how much longer they had, but he didn't trust his voice. He decided to go ahead and do the "Ditching Imminent" items first and finish the rest of the checklist if he had time. He hand-walked his way back to the galley and reached up for the auxiliary hatch handle. By now nothing seemed real and, in sort of a dreamlike state, he felt the handle give under his pressure and felt the rush of air as the hatch rotated down inside the aircraft. He turned sideways and very carefully reached outside the plane for the wire that would tear open the fabric patch covering the hatch emergency release. The unexpected force of the slipstream slammed his hand against the back of the opened hatch. With a surprised snort of pain, he looked at the freshly bleeding wound on the back of his hand. He tried again to drop the hatch, this time allowing for the windstream. With his index finger he pulled forward and again felt pain as the bare wire cut into his finger. Finally the cloth began to rip and he pulled the wire all the way through. He manipulated the exposed release handle until the hatch fell free into the aircraft. Bill manhandled the hatch into the crew latrine and closed the door.

Turning around, he reached over and turned on the impact light under the opened hatch. Very slowly and carefully, he returned to his seat. The next item was to fasten and lock his seatbelt and harness.

As he closed the latch on his seatbelt, he realized that he didn't have his life vest on yet. Hitting the seatbelt release, he reached back to get his preserver off the hook next to his seat. He tried for several minutes to struggle into the vest while seated, but finally had to stand erect to straighten out the tangle of straps and fasteners. Looking down, he spotted the emergency radio in the compartment behind his seat. Cursing silently, he took off his life vest and donned his radio vest which, thank God, went on quickly and smoothly. Then he put on and fastened his preserver. It hung loosely under his armpits, but by now he was unwilling to spend the time to draw it tight.

A fast check with the altimeter showed them passing two thousand feet. He sat back down and put on his headset. This time there was no one talking over the interphone. The second engineer was missing from the flight deck and Bill assumed he was downstairs helping the loadmaster.

For the first time, Bill felt a certain measure of calm. He knew he was still under the influence of shock, but at least his mind appeared to be working logically. He could look out his window and see the water. It was close. Too damn close, he thought, and it's going to get a lot closer.

God, he prayed, I don't want to die! Not now, not like this. He could feel his heartbeat increase and a vein began pulsing in his temple.

The pilot was starting his briefing for the approach and Bill tried to pay attention. He could hear him describe the swells and the type of sea, but Bill couldn't concentrate. He knew he had forgotten something. Something important.

THE DITCHING KIT! It hit him like a thunderbolt. He had forgotten to prepare a ditching kit. He hadn't even fixed the water tank for ditching. It was on his checklist. It was his responsibility and he had forgotten!

He didn't even spare time for a glance at the altimeter as he again released his seatbelt and lurched up from his chair. He could vaguely hear the pilot calling him over the interphone as he reached up to remove his headset, but by now he had only one idea and one goal. He had to complete his checklist!

As he passed the engineer, he looked back at the cockpit and saw the major yelling towards him and motioning at him, but he turned and took the short step up to the galley. He could hear a ringing sound through the sound of the motors that seemed to go on and on. The plane was shaking fiercely now, with short periods of oscillation, and he had to fight to keep his footing.

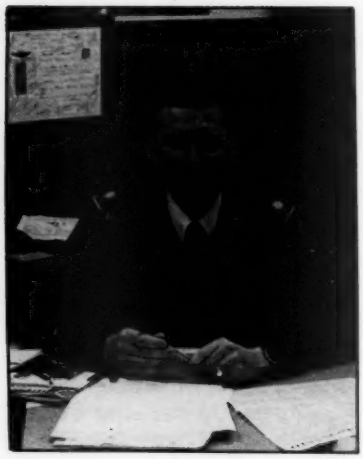
As he grappled with the emergency water supply below the coffee jugs, he tried to remember how to remove the hose that ran from the bottom of the tank to the sink in the crew latrine.

By now he was almost crying as the sense and pressure of urgency closed in on him. "No time! No time!" he heard himself screaming and looking up he could see the ocean through the front windshield of the cockpit. He hadn't realized how close it was and he was frozen with fear. The pilot was frantically cranking in trim and the engineer was working the two throttles with one hand and waving at Bill with the other.

Bill knew with dreadful clarity what the engineer was trying to tell him and, for the first time, really heard the loud, incessant ringing of the alarm bell on the buffet. He lunged towards his chair and the security of his harness.

He was halfway into the seat when they hit the first wave crest. He could feel the flash of pain as his ribs broke against the loran set, then he was ungulfed in blackness. The last thing he heard was the steady ringing of a bell. ★

Global Notes



How quickly they come, and how quickly they go! It's time, once again, to bid fond farewells to both associate editors.

— To Maj. Steve McCauley who came to us from security assistance duty in Madrid, Spain, where he also instructed in the JUSMG-MAAG C-12. Steve is taking his UH-1N, C-141, and C-12 experience to HQ MAC/XP, where he'll work on C-141 systems acquisitions. Good luck, Steve!

— Goodby also to Capt. Dan Dougherty, who after too short of a stay, has won an assignment back to the flight deck. He leaves this month—McGuire bound. This will be his first attempt at large multi-engine jets, and he's up for the challenge. Dan flew Army copters in Vietnam, and C-130s into Pacific typhoons as well as at Kirtland's formal school. This should just about round him out; experience-wise that is. Our best wishes to you, Dan.

All is not lost however. Our extensive recruitment effort bore fruit. Our newest addition to *The MAC Flyer* staff is Maj. Dale E. Van De Ven, who comes to us from

the Safety Office at 21st Air Force. Dale started his Air Force career as an Air Weapons Controller serving tours at Duluth IAP, Udorn RTAFB, Hancock Fld, Wallace AFS, and McChord AFB. He was then selected to attend UNT, graduating in Feb 1980. His safety career started while serving as a line navigator with the 41 TAS, Pope AFB, NC. After a stint as Chief of Safety in the 41st, Dale moved to a wing FSO position and eventually to the Chief of Flight Safety slot before transferring to McGuire AFB as Deputy Director of Safety, 21st Air Force. Welcome aboard, Dale.

Maj. Stephen E. Behr is our second addition to the staff. Major Behr's move is a short and easy one—a skip and a jump from the wing safety office across the base. There since 1985, Steve wore two hats—Deputy Chief of Safety and Chief, Flight Safety. His background includes flying C-141s at Charleston; C-140Bs in Ramstein (where he was a Berlin Corridor Pilot); CT-39As at Norton; and C-21s here at Scott. Welcome aboard, Steve!

RUN THAT ONE BY ME AGAIN?

(If you thought the grass was greener, try to find safe judgment in this one.)

A Boeing 747 commercial airliner crew got a Number 3 fire indication during takeoff; but, take off they did. All engine parameters indicated normal, except the rapid rise in Number 3's nacelle temperature gauge. Amazingly enough, after they shutdown the engine, the fire lights and warning bell indications stopped. Furthermore, nacelle temperature in Number 3 returned to normal.

Having solved this serious problem and with the fire out, the crew elected to restart the errant engine. So they did, and all indications were normal. That is, of course, until they started to add power. Imagine that, they got a rapid rise in nacelle fire indicators. When they pulled power back to idle, temperature indications dropped back to normal.

Now admitting to themselves there might be a problem, they returned to departure point for an "overweight" landing (in excess of 660,000 lbs). The landing was normal, and the crew did not exercise emergency authority. Number 3 was shut down on the runway.

Maintenance found Number 3's thrust reverser "S duct clamp" blown off. They replaced the right-hand fan cowl, S duct clamp, and S duct support, and deactivated the reverser due to damaged wires at the power drive unit.

Enough said.

QUICKSTOPPERS

HH-43 CHECKLISTS

(July 1970)

Recently one of our HH-43s was preparing to take off on a local training mission from an overseas base. While completing the "Starting Engine And Before Taxiing" checklist, the pilot placed the fuel control switch to emergency position - with throttle full open! Needless to say, the engine accelerated rapidly. Maximum rotor RPM could not be verified, but it was something over 300! The pilot returned the throttle to flight idle and shut down without further incident.

The amplified checklist in the HH-43 Dash One spells out the procedure for the fuel control switch check. The item just before "Fuel Control Switch - Emergency" *is* "Throttle—Idle."

The best procedures in the world are worthless—if they're not used.

THX KXY

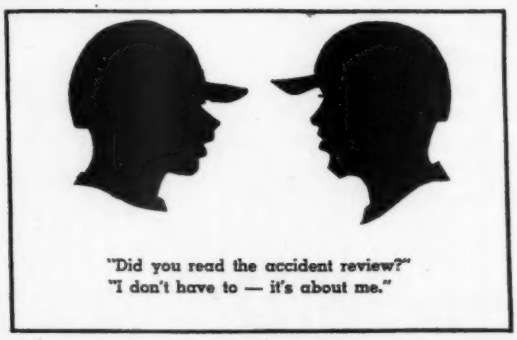
(March 1971)

Xvxn though our typxwritxr is an old modxl it works quitx wxll xxcpt for onx of thx kxys. It is trux that thxrx arx forty kxys that function wxll xnough, but just onx kxy makxs a diffxrxncx.

Somxtimxs it sxxms our aircrxws arx rathxr likx this typxwritxr—not all thx kxy pxoplx arx working propxrly.

You may ask yoursxlf, "Wxll, I am only onx pxrson, I won't makx or brxak it," but it doxs makx a diffxrxncx bxcausx a txam rxquirxs thx participation of xvry pxrson to bx xffxctivx.

So thx nxxt timx you think you arx only onx pxrson and that your xfforts arx not nxxdxd, rxmxmbxr our typxwritxr.



"Did you read the accident review?"
"I don't have to — it's about me."

"NOSEY" AIRCRAFT

(August 1973)

The throttle would stick during a descent or nose low attitude but always broke free when the C-130 pilot brought his bird to a nose up attitude.

It was number 3 throttle which was binding just above the flight idle position and no one on the crew could figure out why.

The pilot's experience told him that such a condition doesn't lend itself to a great deal of experimenting, so he landed and terminated the mission.

The condition could not be duplicated during ground run-up and maintenance personnel could find no defect. But the FCF pilot had better luck. While he was taxiing down a sloping ramp, the throttle stuck again.

This time, mechanics discovered that a set locking screw on a shaft drive gear was missing. This allowed the gear to move off the shaft, thus locking the throttle linkage.

Investigators suspect the set screw was left out during engine overhaul.

CELEBRATING 35 YEARS OF *TMF*: 1954 - 1989

After Deadlines

1988 SICOFAA AWARD RECIPIENT ANNOUNCED—The 437th Military Airlift Wing, Charleston AFB, South Carolina, was the selected as the winner of the System of Cooperation Among the American Forces (SICOFAA) Flight Safety Award. Well Done!

"TEAM SPIRIT 89 WAS A SUPER SAFETY SUCCESS"—Such are the words from HQ PACAF safety folks. They were "no Air Force fatalities; no reportable on-duty disabling injuries; no reportable government motor vehicle mishaps; and no tent or heater fires. It was outstanding leadership and dedicated professional attitudes that made it happen. Please convey our appreciation for a job well done to your subordinate participants." KUDOS to all.

TWO GENERALS TOGETHER AGAIN—Gen. Duane H. Cassidy, Commander in Chief, Military Airlift Command and U.S. Transportation Command is joined by retired General Jack J. Catton, former CINCMAC, in a ceremony on the Dover AFB, Del., flightline. The two generals flew the final C-5A manufactured by Lockheed Aeronautical Systems Co., from Marietta, Ga., to Dover AFB, 17 April. Both generals were also aboard the initial C-5A delivery flights 20 years ago when then-Major Duane Cassidy was General Catton's executive aide and pilot.

MAC ASSISTS IN THE VALDEZ OIL SPILL—Equipment needed to assist in the cleanup of the Alaskan oil spill wait for loading into a 436 MAW, Dover AFB, Del., C-5 at Portland International Airport, Oregon. This was one of the first MAC missions dispatched to Elmendorf AFB, AK., to assist with the cleanup effort near the port of Valdez in that state. As of the end of April, 18 MAC transports airlifted almost 1000 tons of cargo and almost 100 passengers to assist in the cleanup. Aircrafts and crews from 60 MAW, Travis AFB, Calif., 63 MAW, Norton AFB, Calif., 512 MAW (Assoc), Dover AFB, Del., and the 438 MAW, McGuire AFB, NJ., also participated in the effort.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989 — 654-015/7

1988 USAF SAFETY PLAQUES WINNERS

Flight Safety Plaque

39th Special Operations Wing
41st Rescue and Weather Reconnaissance Wing
53d Weather Reconnaissance Squadron
89th Military Airlift Wing
166th Tactical Airlift Group (ANG)
172d Military Airlift Group (ANG)
314th Tactical Airlift Wing
435th Tactical Airlift Wing
436th Military Airlift Wing
437th Military Airlift Wing
463d Tactical Airlift Wing
616th Military Airlift Group
919th Special Operations Group (AFRES)

Explosives Safety Plaque

1st Special Operations Wing
314th Tactical Airlift Wing
608th Aerial Port Squadron

Nuclear Surety Plaque

438th Military Airlift Wing